

GWINNETT COUNTY BUILDING PLAN REVIEW

Department of Planning & Development
One Justice Square
446 West Crogan Street
Lawrenceville, Georgia 30046
www.gwinnettcounty.com

RETAINING WALL **CODE COMPLIANCE GUIDELINES**

Plan review and permit requirements for each retaining wall (*which either exceeds 4 feet in height or which has backfill slope greater than 1 foot rise in 3 feet horizontal*) and each detention pond wall (*dam*) requires a separate building permit prior to construction with submission of complete structural construction details and specifications subject to the requirements of this report.

Refer to the Building Code Compliance Checklist for additional requirements and permitting procedure.

Plan review is based on the following information:

DATE OF REVIEW: _____ CDP / MDP / SDP #: _____
PROJECT NAME: _____
PROJECT ADDRESS: _____
STRUCTURAL ENGINEER: _____ GEORGIA REG. #: _____

List of applicable codes:

The Gwinnett County Construction Code

International Building Code -2006 Edition with 2007-2009-2010 Georgia State Amendments
International Mechanical Code -2006 Edition with 2007-2008-2010-2011-2012 Georgia State Amendments
International Fuel Gas Code -2006 Edition with 2007-2008-2009-2010 Georgia State Amendments
International Plumbing Code -2006 Edition with 2007-2008-2009-2010-2011-2012 Georgia State Amendments
NFPA National Electrical Code - 2011 Edition
International Energy Conservation Code -2009 Edition with 2011-2012 Georgia State Amendments

Requirements and permitting procedure:

Residential: retaining wall must be located on a site plan and have the setback from the property line approved by the Development Review Section.

Commercial: submit a site plan approved by the Development Review Section and Storm Water Review Section to indicate the retaining wall/ detention location.

Exception: A Building Permit is not required for retaining walls that are 4 feet or less in height (Construction Code Section 103.1.1 Exception No.2 (1)) provided that the slope of backfill materials does not exceed a 1 foot rise in 3 feet length.

Step 1: Obtain Approval from the Building Plan Review Section of P&D. For retaining walls that exceed 4 feet but are 6 feet or less in vertical height, a design drawing by a Georgia registered professional engineer is not required. If greater than 6 feet in height, a design drawing must be submitted for review & approval sealed by a Georgia registered professional engineer.

Step 2: Submit a Completed Application at the Building Permits Counter of P&D. Submit the Building Permit Application, proof of approval by the Building Plan Review Section, and permit fee. The permit fee is calculated as follows: \$.006 x the value of construction cost (minimum fee is \$30). There is no fee for the required Certificate of Completion. Fees must be paid at time of permit issuance.

Inspection Requirements. Inspections are requested by calling P&D's 24 / 7 automated inspection line (IVR System) at 678.518.6277. The Building Permit Yard Card must be posted at the site & be visible from the street.

- For "poured in place" retaining walls, a "footing inspection" must be scheduled and successfully passed prior to pouring. Once the footing has been poured, and one side of the forms & structural steel is in place, a "wall inspection" must be scheduled, performed and successfully passed.
- For "cross-tie" retaining walls, a "wall inspection" must be scheduled and successfully passed for verification of adequate "dead-men" and proper drainage design for the wall prior to backfill material being installed.
- After the wall is completely finished, final inspection must be scheduled, performed and successfully passed in order to receive the required Certificate of Completion.

BUILDING CODE COMPLIANCE CHECKLIST ITEMS

1. Submit copy of county-approved site grading plan which clearly indicates the applicable location for each retaining wall and for each detention pond wall (*dam*) and which specifies the elevation at top and bottom of each wall. (*Alternatively, for retaining walls that are located on single-family residential lots, provide a plan which clearly indicates the location of each dwelling, property line, and proposed wall including elevation at top and bottom of wall.*)
2. Provide complete structural construction details for each retaining wall and for each detention pond wall (*dam*) shown on county-approved site grading plans which clearly specify required materials, wall and footing dimensions, reinforcing (type, size and spacing), concrete design strength, drainage method for relief of hydrostatic pressure, type of backfill material, and slope of backfill finished grade. (*For modular type retaining walls, details shall also clearly show the required types, spacing and embedment length of all geogrid reinforcement.*)
3. Structural construction details for each retaining wall exceeding six (6) feet in height and for

each detention pond wall (*dam*) exceeding five (5) feet in height shall be sealed and signed by a professional structural engineer registered in the state of Georgia in accordance with Gwinnett County Construction Code and Development Regulations.

4. Specify on structural drawings for each retaining wall which exceeds 6 feet in height and for each detention pond wall (*dam*) the applicable soil parameters utilized in the wall design including but not limited to allowable soil bearing pressure, equivalent lateral fluid pressure (active and passive), surcharge load, internal angle of friction, coefficient of friction, and soil density.
5. Specify on structural drawings the 28-day design compressive strength (f'_c) of concrete for compliance with IBC Table 1904.2.2. (IBC sections 1805.4.2, 1901.4, 1904.2.2, and 1905.1)
6. Indicate on structural drawings the required material specifications for all steel reinforcement to be placed in concrete construction including ASTM designation, and material grade or yield strength (KSI) for compliance with ACI 318-05 section 3.5. (IBC section 1901.4)
7. Specify the minimum required concrete cover for reinforcement for all concrete structural elements including but not limited to foundations, slabs, and walls. (IBC sections 1901.4 and 1907.7)
8. Specify the minimum required lap splice lengths (*units of feet/inches*) for steel reinforcement in compression and tension for all concrete structural elements including but not limited to foundations, slabs, and walls. (IBC section 1901.4; ACI 318-05 sections 12.14 thru 12.19)
9. Specified thickness of structural concrete element (*including but not limited to footing, slab, wall*) does not appear to provide the minimum required embedment depth for the proposed reinforcement beyond either construction joint or free edge of element to ensure full tensile development in accordance with ACI 318-05 sections 12.2, 12.4, and 12.5 for adequate transfer of design forces.
10. Proposed wall reinforcement (*horizontal and vertical*) does not appear to comply with the minimum requirements of ACI 318-05 section 14.3.3. (IBC section 1901.2; ACI 318-05 section 14.1.2)
11. Submit calculations sealed and signed by the structural engineer-of-record which demonstrate the structural adequacy of each proposed wall to resist the applicable design loads within the specified allowable soil bearing pressure and to maintain a minimum factor of safety of 1.5 against overturning and sliding. (Gwinnett County Construction Code section 103.2.2; IBC sections 1610.1 and 1806.1)
12. State the following verbatim on structural construction details for each retaining wall which exceeds 10 feet in height (from top of footing) and for each detention pond wall (dam) submitted for building permit for compliance with Gwinnett County Development Regulations Articles 9.8.2.d(2), 9.8.2.d(4) and Gwinnett County Construction Code sections 103.2.2, 103.8.6.8:

“Prior to construction, soil design parameters stated on the county-approved structural construction wall details including but not limited to allowable soil bearing pressure, equivalent lateral fluid pressure (active and passive), internal angle of friction, coefficient of friction, and soil density shall be field-verified by a Gwinnett County approved *Third Party Geotechnical Testing Firm*. A corresponding written report sealed and signed by a professional engineer registered in the state of Georgia and employed by the *Third Party Geotechnical Testing Firm* shall be submitted to *Gwinnett County Chief Commercial*

Building Inspector prior to construction beyond footing installation. In the event of conflict between field-verified soil parameters and those stated on the county-approved details, construction shall not proceed until appropriate design modifications submitted by the wall design engineer-of-record have been reviewed and approved by *Gwinnett County Building Plan Review*.”

13. State the following verbatim on structural construction details for each retaining wall which exceeds 10 feet in height (from top of footing) and for each detention pond wall (dam) submitted for building permit for compliance with Gwinnett County Development Regulations Articles 9.8.2.d(2), 9.8.2.d(4) and Gwinnett County Construction Code sections 103.2.2, 103.8.6.8:

“Prior to issuance of a Certificate of Completion for each wall by Gwinnett County, written notification sealed and signed by the wall design engineer-of-record shall be submitted to the *Gwinnett County Chief Commercial Building Inspector* which acknowledges receipt of a soils investigation report by a Gwinnett County approved *Third Party Geotechnical Testing Firm* and which confirms that all soil parameters applicable to the design of the wall are consistent with those reported as field-verified.”

14. Note directly on plans the name of the Gwinnett County approved *Third Party Geotechnical Testing Firm* responsible for performing the subsurface soils investigation and for verifying the soil design parameters specified on the structural construction details for each retaining wall which exceeds 10 feet in height (from top of footing) and for each detention pond wall (dam). (Gwinnett County Development Regulations Articles 9.8.2.d(2), 9.8.2.d(4) and Gwinnett County Construction Code section 103.8.6.8)

The Gwinnett County approved *Third Party Geotechnical Testing Firm* and the wall design engineer-of-record shall be independent of one another such that there is no business or employment relationship between parties.

15. Each retaining wall up to 10 feet in height (*from top of footing*) which has been designed for an allowable soil bearing pressure greater than 2000 PSF shall be subject to the requirements of items 12, 13, AND 14 of this document based on the common soil classifications in this region, material class #4 of IBC table 1804.2. (IBC sections 1802.2.1, 1802.4, 1802.5, and 1802.6)

****For additional information refer to the Building Code Compliance Checklist****